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Balzer, Wolfgang

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Wolfgang Balzer*

EXCHANGE VERSUS INFLUENCE: A CASE OF IDEALIZATION

ABSTRACT. The intertheoretical relation between economic equilibrium theory and a theory of social institutions is studied in reduced form, i.e. by comparing the central primitives rather than the full formal models. It is shown that equilibrium can be regarded as a limit of institutions with ever more symmetrical power relations. Economic equilibrium theory thus is shown to be an idealization of the theory of social institutions. A provisionary topology which gives substance to the notion of a limit is defined "internally", i.e. by reference to items occurring in the models only. The meta-scientific status of idealization is briefly discussed.

Some famous authors have held that an adequate account of social phenomena can be given only by a combined approach including economics, sociology, psychology, and history.¹ This idea certainly is compelling; everyone having worked with a theory applicable to social systems will have felt that some part or aspect of the real situation could be better understood from the point of view of a different theory. It then seems natural to try combining different theories in order to improve the scientific picture of the situation. The problem, however, is that we have no clear ideas what it means to "combine" different theories from different disciplines to form a "joint picture" of the real phenomenon. There is a "problem of joint application". Vague notions of complementarity occur here and then, also the notion of a caricature has been used to describe the issue. We are certainly not in a position to make general claims about how different theories can, or do, work together in modelling real systems more adequately, simply because there are very few cases in which such combination was attempted, and because in such attempts the "theories" involved were very vague.²

* I am indebted to Bert Hamminga for helpful comments on an earlier draft.

¹ The view is explicit, for instance, in Braudel (1980), it is clearly implicit in Marx's work.

² Like in Marx.

In this paper I want to approach the problem by studying the borderline between economics and sociology. Here is a clear cut case in which the economic idealization of a free market clashes with the real existence of institutions aiming at the distortion of that market. It seems to me that this situation is typical for the relation between disciplines of the above list. By studying it more closely we therefore may hope to get a better understanding of how different theories in the social domain relate to each other and to reality. Intuitively, the relation in the case mentioned seems to be one of idealization or concretization: if the idealizations defining a free market are taken back, and the economic theory in this way is concretized, we arrive at a more comprehensive theory including institutions and market-like phenomena. A question arising naturally in that context is whether this case fits Nowak's conceptual account of idealization.³

Of course, there is little sense in talking about the whole disciplines of economics and of sociology; these are bodies of knowledge too comprehensive in order to describe real phenomena. From a meta-theoretic point of view⁴ real phenomena or real systems are described or modelled by scientific theories. So we have to find two theories dealing with systems of the kind of markets and institutions. In economics there is no problem of finding a rather generally accepted theory about ideal markets, which in its various different forms is called equilibrium theory. As I will not go into the full details of any of its axiomatizations here, it is not necessary to pick one particular exposition. Any reader may think of his or her favorite version.⁵ On the other hand, there is at the moment no theory of institutions on which sociologists would agree in a similar way. In sociology, the leading paradigm among formally trained scientists is game theory.⁶ However, no empirical application of a game theoretic model to a real life social institution has been achieved up to now.⁷ Moreover, it can be argued that game theory misses, and even contradicts to, a basic feature of institutions which consists in the change of the opponent's payoff-function. While game theory assumes that the

³ Expositions are found in Nowak (1980), see also Hamminga (1989).

⁴ My personal meta-theory is of course the structuralist view of theories which, I think, is the most sophisticated general approach to the structure and development of theories. See Balzer, Moulines, Sneed (1987).

⁵ Arrow & Hahn (1971), Debreu (1972), Haendler (1979), Hildenbrand (1974).

⁶ In particular, there is the claim that social institutions can be understood as supergames. See Taylor (1976) for the technical notions.

⁷ There are of course numerous abstract "applications" of the game theoretic apparatus to abstract classes of situations being defined by certain characteristic payoff functions. But by "empirical application" I mean the full-fledged confrontation of a model with empirical data gathered from a concrete situation.

payoff functions are given, the theory of institutions assumes that individuals try to change their opponents' payoff functions.⁸ Therefore I prefer a theory of social institutions which I have developed myself,⁹ and I will take this theory as the sociological "counterpart" to equilibrium theory. The more narrow aim then is to study the relation between general equilibrium theory and that particular theory of social institutions in order to see what the relation of idealization amounts to in this case.

The result may be summarized by three propositions. First, the case indeed exemplifies the central feature of idealization, namely that we come from one theory to the other by means of abstraction. We come from institutions to markets by abstracting from certain features present in institutions which in fact prevent free exchange. Second, we even can point out some internal criteria — criteria formulated purely in terms of the theories' vocabulary — for idealization, and for the degree in which idealization is present. Third, however, there are doubts whether Nowak's conceptual model of idealization is general enough to treat cases of this kind in a natural way.

1. Preparations

The initial image of the situation is this. We know that real markets are biased by all kinds of regulations imposed by political and other institutions. Because of this, real markets are neither free nor competitive.¹⁰ On the other hand, we believe we can imagine various such regulations of different strength, and we can imagine that by eliminating the strongest distortion, and then step by step other, less important ones, the system will approach a free market. In other words: if we make more and more idealizing assumptions about a real exchange system we will approach a free market, a model of equilibrium theory.

In order to obtain a more substantial account we have to look more closely at the two theories modelling the system "before" and "after" the idealizations have been made. If we assume that all important distortions are imposed on the system by social institutions, we may take the system in its non-idealized form as a model of the theory of institutions. The (counterfactual) idealized system on the other hand clearly is a model of equilibrium theory. For reasons of space it is not possible to present

⁸ See Balzer (1992a) for details.

⁹ Balzer (1990).

¹⁰ In the last two decades this insight found expression in an internal economic approach, the "new institutional economics". See Bardhan (1989) for a brief account.

these two theories here in full detail. Rather, I will pursue the following strategy. I will concentrate on one central primitive of each theory, and see how these primitives relate to each other. By indicating informally their central role in the respective theory, and by assuming that "other parts" of the models are not essentially affected by the changes considered the comparison is thus "reduced" to the study of these two primitives. Without offering a full-fledged formal analysis I claim that the result obtained by this "reduced" approach will also be obtained when the full models of both theories are taken into account.

At the side of equilibrium theory I concentrate on the notion of *exchange* which, informally, lies at the heart of equilibrium theory. Ironically, this notion does not function as a primitive in the usual axiomatizations. It may be easily introduced, however. Let us consider a primitive of the following format:

$$\text{exchange}(i, a, j, b),$$

to be read: "individual i exchanges with individual j commodity a against commodity b ". a and b are interpreted as tokens whose description includes the kind of good as well as the quantity. This notion is closely linked to that of endowment. If we know the endowments of all individuals before the exchange, and if we have complete knowledge of the exchange-predicate then the endowment after the exchange is uniquely determined. Also, from the exchange-predicate both endowments, before and after, may be determined, provided we know the "rest", i.e. those quantities which the individuals keep in their possession without exchange. This shows that the predicate really is fundamental for equilibrium theory. If it were not for reasons of simple mathematical formalism it might have easily entered into existing expositions. To the observational basis provided by endowments or exchange equilibrium theory adds the notion of utility or preference, as well as that of equilibrium plus the well known assumptions of maximization, convexity of preferences, and clearing of markets.

At the sociological side more explanation would be necessary. One main primitive of the theory of institutions is the notion of power which is used in the following format

$$\text{power}(i, a, j, b),$$

to be read: "individual i by performing action a exerts power over individual j so that j performs action b ". Again, a and b are tokens, that is, concrete actions in their historical uniqueness. This mode of actually exerting power has to be distinguished from the disposition of having power which can be understood in terms of exerting power (to have

power is to be able to exert power under suitable conditions¹¹), and from the means of power which are objects, roles or institutions enabling the dominant agent i to exert power.¹²

Very roughly, a social institution is modelled as a hierarchy of macroscopic groups among which a *status* relation is established in terms of individual exertions of power. Roughly, group g has higher status than group g' if almost all members of g exert power over suitable members of g' but not vice versa. A stronger kind of connection is obtained by requiring that almost all members of g' are affected in such power relations, i.e. for nearly every member i of g' there is some member of g exerting power over i . Thus on the macroscopic level, an institution consists (among other things) of a structure

$$\langle G, st \rangle,$$

where

- 1) G is a set of groups
- 2) st is a binary relation on G
- 3) st is transitive¹³ and
- 4) there exists a group g in G which has highest status.

Further parts of the model, like the *superstructures* which contain those parts of the intellectual representations relevant for the institution, and the *social practises* which capture the origin and development of the different types of actions in terms of which the groups are characterized, cannot be described here in detail.¹⁴

What is important here is to see the way in which social institutions function. An institution may be regarded as a kind of crystallized web of power relations among individuals which is stabilized in the interest of the unique group having highest status in the institution. As certain power relations are favourable for members of this group, the members are interested in having these relations legitimized and stabilized. Once this is achieved, and the institution is established, we may well see how these power relations also function as obstacles for competitive exchange. A group with high or highest status may be able to introduce all kinds of regulations which yield some extra benefit for members of

¹¹ This leads to the analysis of counterfactuals which is not seen problematic to-day. See, for instance, Lewis (1973).

¹² Compare Wartenberg (1990) for an up to date account of power.

¹³ I deviate in this point from Balzer (1990), where the status relation is taken to be anti-reflexive. Anti-reflexivity in the full theory enforces asymmetries which are not compatible with the picture of equilibrium we have in exchange. If exchange is to become a "special case" of an institution this requirement therefore has to be weakened.

¹⁴ More details in Balzer (1990).

this group. If this group is not itself engaged in business it will impose taxes or the like, if it is a group actively trading itself, it will try to protect its business against members of other groups. All kinds of taxes, subsidies, and institutional regulations and prescriptions in modern states may be seen in this way as favoring some politically more powerful group — i.e. a group the members of which can exert power over many members of other groups — at the cost of other groups. This description should be sufficient to stress the fundamental role of the above notion of power in the theory of social institutions.

2. Comparison

I will now try to compare the two theories in a “reduced” way by comparison of the two primitives: *exchange* and *power*. These notions are well suited for comparison. They have the same numbers of arguments, and two of their arguments may be taken to be the same on both sides in a straightforward way. The notion of an individual or a person is the same both in equilibrium theory and in the theory of institutions. So “i” and “j” in the above expressions may be taken to denote the same kind of entities in both predicates.

What about “a” and “b”? In equilibrium theory these denote commodity tokens, in institution theory they refer to actions. Is there a big ontological difference between commodities and actions? Certainly, under suitable circumstances, actions may pass for commodities. I may prefer action *a* to action *b*, or action *a* may have some utility for me. Conversely, it would seem odd to say that commodities are a kind of actions. But there is no invincible obstacle between the two. With a slight, and natural step of additional interpretation we may come from commodities to actions. The use of any commodity is in its consumption, and its potential use in its potential consumption or its potential to improve consumption.¹⁵ In the present context we may well pass over from a commodity to the action of its being consumed. Under this reinterpretation, commodities may be “translated” into corresponding actions. But it is not necessary to agree on this global ontological embedding. As already stated, equilibrium theory may be rephrased such

¹⁵ Obviously, we are not discussing deep philosophical or moral issues here. The context is an empirical theory about certain kinds of social systems and the way of individuals’ behavior in such systems. Even if some persons may attach value to things like rules, truth or beauty, this does not provide a serious argument against the transition proposed, for such phenomena will very likely be eliminated in the course of the approximate application of empirical theories of the kind discussed.

that it talks about *exchange* and non-exchanged possessions instead of the usual endowments. Now exchange of commodities clearly may be described in terms of actions. Instead of saying that *i* and *j* exchange *a* for *b*, we may as well say that *i* performs the action “*i* hands over commodity *a* to *j*” and that *j* performs the action “*j* hands over commodity *b* to *i*”. Of course “*a*” and “*b*” still must be verbally described, but their description usually will not contain the expression “commodity”. It is natural to regard each exchange as a pair of two actions, and for this reason we may — in the present context — neglect the ontological difference and take the “commodities” in *exchange* as really being the actions performed in the exchange. Under this construal the ontology of both predicates, *exchange* and *power*, is the same. Writing

E for the set of action tokens which may be, or are, performed in a system, and

J for the set of actors present in the system,

exchange as well as *power* is a subset of $J \times E \times J \times E$. It has to be stressed that the notion of action is very comprehensive, and may be applied to such vast enterprises like the building up of an army or the sacking of a town. Thus we can say that *i*, the king, say, by building up an army exerts power over his neighbour-king to make him pay tribute.

If the ontology is the same for both predicates, where is the difference? We have to explain what we mean by exertion of power in order to see the difference. In the theory of institutions exertion of power has three features.¹⁶ Let me call any quadruple $\langle i, a, j, b \rangle$ for which it holds that *power*(*i*, *a*, *j*, *b*) a *power event*. First, and rather trivially, the two actions *a*, *b* occurring in a power event have to be actually performed. If this were not the case we could not say that power is exerted. Second, action *b* has to be caused by action *a* at least partially from the point of view of one of the actors *i* or *j*. If there were no partial causation, both agents would say that *b* simply happened to be performed some time after *a* but without any connection. Third, and most importantly, agent *j* originally does not intend to perform the action *b*. Thus we arrive at the following characterization of power (which is not meant as a definition but as an ordinary axiom).

power(*i*, *a*, *j*, *b*) iff

- (1) *i* performs *a* and *j* performs *b*
- (2) *i* or *j* believes that *a* is a partial cause of *b*
- (3) *i* intends that *j* should do *b* while *j* does not intend to do *b*.

¹⁶ Compare Balzer (1990) and Balzer (1992b) for details.

To make this more precise, we may imagine the power event as comprising two instants. In the first instant, action *a* is performed by person *i*, and at some later time action *b* is performed by person *j*. Now the crucial condition is that originally, i.e. at the time when *a* is performed by *i*, *j* does *not* intend to do *b*. Thus the fact that *j* later actually performs *b* points to some internal change on *j*'s side. *j* may have come to change her intentions so that, at the later time, *j* also intends to do *b*. But sometimes this is not so: *j* performs *b* even though she does not intend to do *b*. Informally, we may say that exertion of power has to overcome some resistance on *j*'s side.¹⁷ Here is a clear difference between *exchange* and *power*. In exchange, both actors intend to perform their actions, in exertion of power actor *j* (which may be called the *subordinate* actor while *i* is called the *superordinate* actor) does not intend to perform his action, at least originally he does not. This difference, once stated, must not be overemphasized. The degree of resistance is variable and may become arbitrarily small. On the other hand, being as small as we like, it still marks a difference. To see this, consider a possible objection¹⁸ pointing out that in exchange also some resistance is overcome. The offered price being large finally overcomes the partner's "resistance" to sell. Under the usual idealizing assumptions of equilibrium theory this way of describing the situation is not satisfactory, though. The usual analysis would run as follows. The rational, potential seller, *j*, for each fixed price *p* knows whether selling at *p* increases his utility or not. If not, the seller does not intend to sell at the given price, and in the meaning of the term as used above resists the exchange. If, on the other hand, *p* is high enough, the person intends to sell, and the exchange takes place. Similar considerations apply to the potential buyer, *i*, and the particular price she offers. She will intend to exchange only if the price is below some fixed bound known to her. Looking at the situation in this way "to overcome *j*'s resistance" means to make a new, better offer which means to perform a new, different action. By the original action *a* of offering a price *p* too low, *i* does not overcome *j*'s "resistance", and no action takes place on *j*'s side. So there is no exertion of power. By the different action *a'* of offering a price high enough, on the other hand, no resistance needs to be overcome, so again there is no exertion of power.

Consider the spectrum of English verbs reaching from begging at the one end *via* asking, proposing, to exchanging in the middle, and *via* requiring, demanding to ordering at the other end. The order inherent in

¹⁷ This feature has been recognized long ago, see for instance Weber (1980), p. 28.

¹⁸ I am indebted to B. Hamminga in this point.

this list corresponds to a similar order of the actor's status with respect to the other person, the addressee. To beg means to speak from the lowest level, to ask for something still indicates an inferior position. In exchanging both persons are at the same level. The person who demands or orders is in a superior position with respect to the addressee. There are certainly other expressions falling into that spectrum unknown to me because of my poor English. Systematically, and independently of the particular language, the general situation may be depicted as in figure 1.

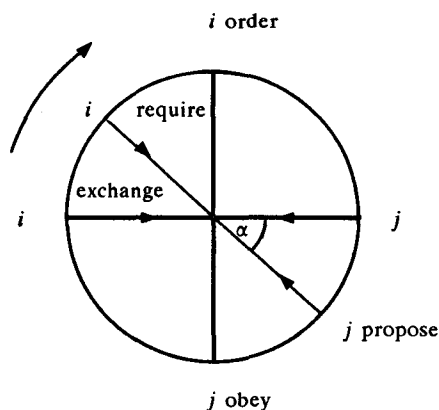


Fig. 1.

At the opposite sides of the circle we have on any line through its centre two persons i and j interacting with each other. If the corresponding line is horizontal the interaction is an exchange, if it is vertical the interaction is an exertion of power of the person "on top" over the person "on bottom". Between these two extreme positions there are infinitely many intermediary positions each being abstractly given by some specific angle α . If α ranges from zero to 90° the corresponding interaction changes from pure exchange to pure exertion of power.

We also interpret the picture as showing just different degrees of exertion of power each degree being given by angle α . Power is exerted in the highest possible degree if $\alpha = 90^\circ$. When α decreases power becomes less articulated. In this interpretation exchange becomes a special case of exertion of power. It is the mildest form of power, a form in which both agents are practically equal. This special case is approached "in the limit", namely when α goes to zero.

At the institution's side this limit really involves two features. First, we may look at the degree of resistance which has to be overcome on the

subordinate's side. In the above characterization of *power*, condition (3) says that *j* does not intend to do *b*, but condition (1) states that *b*, is performed by *j*. Now the higher *j*'s intention not to do *b* the greater is *j*'s resistance, and the more power is exercised over *j* by *i*, if *j* actually performs *b*. A second feature is that when going to the limit the relation between the two actors becomes more symmetrical. The subordinate agent also develops an intention to the effect that the superordinate agent should do "his" action *a*, and also there is growing belief among the two that action *b* partially causes action *a*. In the limit when there is no resistance at all but an intention also on *j*'s side and when there are symmetric causal beliefs the situation is perfectly symmetric. In a power relation which is close to exchange *i*'s action *a* also may be described by saying that *i* hands over some good to *j*, and *j*'s action *b* accordingly by saying that *j* hands over some good to *i*.

Extending this relation to the two full theories we should say that equilibrium theory is not only a special case of the theory of institutions, but even is a limit case of the latter. On the macroscopic part of an institution, going to the limit amounts to changing the hierarchical structure $\langle G, s, t \rangle$ in a way in which the status relation becomes "weaker". The status relation between two groups is "defined" in terms of the individual exertions of power among their members. When these power relations approach exchange they become more symmetric as just described, and thus the "difference" or "distance" in status vanishes. In the limit, status differences disappear, the groups have "equal" status in the sense of neither group being higher or lower in status than any other, and thus in a certain sense the groups "merge" into one big group (the set of economic agents).

3. Internal criteria of distance

These considerations indicate that it is not only possible to imagine a transition from an institution to an equilibrium exchange system but also to find criteria of how far the institution is away from the "economic limit" of a model of equilibrium theory. It seems possible to state the degree in which an institution differs from equilibrium in rather operational terms which even may give rise to a quantitative notion of distance.

Consider a system of agents and actions involved in power relations of a social institution. As before, agents are denoted by variables *i, j* and actions by variables *a, b*. For $r \leq 4$ let us say that *x* occurs in the *r*-th

position of the *power* relation iff there exist x_1, x_2, x_3 such that x, x_1, x_2, x_3 form a complete instantiation of the *power* predicate, and x occurs in position number r of this instantiation. Consider the four projections of the *power* predicate

- SUPERORDINATES (*power*) = the set of actors occurring in the first position of *power*
- SUBORDINATES (*power*) = the set of actors occurring in the third position of *power*
- ORDERS (*power*) = the set of actions occurring in the second position of *power*
- OBEDIENCES (*power*) = the set of actions occurring in the fourth position of *power*.

If the system is close to an exchange model the first two sets should be similar in the sense of having a similar number of members, and the same should hold for the last two sets. For in exchange the “exertion of power” inherent in the superordinate’s action a is balanced by an “exertion of power” inherent in the subordinate’s action b . Whenever i exerts power over j in the weak sense of exchange, and thus i is in SUPERORDINATES (*power*) and j in SUBORDINATES (*power*), it is also the case that j exerts power over i in this weak sense, and thus j is in SUPERORDINATES (*power*) and i in SUBORDINATES (*power*). We may take the difference in number of members of both sets as a first component of a measure of difference or distance between *power* and *exchange*. If the difference is great, i.e. if there are many more persons in SUBORDINATES (*power*) than in SUPERORDINATES (*power*), then *power* is far away from *exchange*. It is clear that such a difference cannot be expected between ORDERS (*power*) and OBEDIENCES (*power*) because every action of ordering usually has its counterpart of obedience and *vice versa*. So these two sets will be similar in number also for the *power* relation. There is, however, a second component of the distance measure. In institutions the “upper” groups have relatively few members, but their members exert power over many members of the “lower” groups. Thus the *power* relation in a “normal” institution — where there is a strong status hierarchy — exemplifies a big difference in the number of members of SUPERORDINATES (*power*) and SUBORDINATES (*power*), as already pointed out. On the other hand the numbers of ORDERS (*power*) and OBEDIENCES (*power*) are the same or similar. So few superordinate agents perform many orders, and many subordinate agents each perform an obedient action. This means that — on the average — each superordinate agent performs many different actions of ordering while every subordinate agent performs few actions of

obedience — at least much less than a superordinate agent's orders. So the difference in numbers of elements of the sets *ORDERS (power)* and *SUPERORDINATES (power)* also yields some indication of how far the *power* relation is away from exchange. The larger this difference, the more orders are performed by each superordinate agent, the stronger the power structure, and the more distant is the system from exchange.

We may define a first, admittedly rough, measure of distance of a *power* relation from exchange by the sum of these two differences. Perhaps this is not the ultimate word on comparing the two notions. The point however is that it is defined in purely intrinsic terms; it refers to the *power* relation and to nothing else.

It may be objected that this picture of asymmetries is not in accordance with democratic states which certainly should be included in the analysis of institutions. The objection would point to the fact that in a democracy each voter exerts power over members of the ruling group by voting. Here the second feature of my analysis of power comes into play: the believed partial causation of action *b* by action *a*. Even if I would admit that the actors' beliefs are not so important so that what really counts are the "real" causal connections (whatever this means), the point is that in voting the causal connection is very partial — of the order of one to many millions, as we know. Given that all empirical theories apply only approximately such a small connection will be completely submerged in the blurs used to fit the data to a model. Therefore, the connection does not really count. To put it differently, and straight: on my analysis the voter in a large democracy does not exert power.¹⁹

If we replace "*power*" in the definition of the above four sets by "*exchange*" we obtain four new sets which also may be used in the comparison. By summary the following propositions seem to spring from the previous discussion (where "similar" means "similar number of elements").

SUPERORDINATES (power) and *SUBORDINATES (power)* are
not similar;

SUPERORDINATES (exchange) and *SUBORDINATES (exchange)*
are similar;

ORDERS (power) and *OBEDIENCES (power)* are similar;

¹⁹ I admit that these brief remarks do not exhaust the issue of democratic institutions. There still is the possibility that the voters develop some joint intentions and joint beliefs, and exert power on this "joint" level. An analysis of this is certainly highly important, but still missing. Compare Tuomela (1992) and other work of Tuomela mentioned there for a sophisticated and fruitful approach to joint intentions and beliefs.

ORDERS (*exchange*) and OBEDIENCES (*exchange*) are similar;
 SUPERORDINATES (*power*) and ORDERS (*power*) are not similar.

Of course, this is not a complete list.

4. Idealization

Going to the limit in a sequence of *power* relations which converges (in the sense induced by the distances just defined) to an *exchange* relation may well be rephrased by saying that abstractions or idealizations are made in the transitions at each step. My analysis has made precise which features are abstracted or idealized away. In the “real” systems — the institutions with their status hierarchy — there are asymmetrical *power* relations. Asymmetry is present in the form of resistance on the subordinate’s side, and in differences in the numbers of persons acting as superordinates and as subordinates. When we idealize these asymmetries we come to exchange. In realistic terms: when we counterfactually assume that there is no resistance of the subordinates where really is, and that there are equal numbers of agents on “both sides” where there really are not, then our system looks like a model of equilibrium theory.

It is not a bold hypothesis to claim that equilibrium theory will turn out as an idealization of the theory of institutions. The essentials have been discussed. A model theoretic account involving the full models of both theories would not add much to the picture.

The question however is not to evaluate whether such idealizations are useful or admissible. They occur in all branches of science, prominently in physics, and therefore may well be taken as legitimate scientific procedures. The meta-theoretic question is about the general structure of idealization, and of the role of idealization in science. I want to close with brief comments on both points.

The general structure of idealization was first modelled by Nowak,²⁰ his account has stimulated much of the present work on the subject. His model is formulated in terms of transitions of axioms from one stage to the next where the axioms in the less idealized stage contain some non-zero parameters the convergence of which to zero indicates that the idealized stage is approached. Application of the model to a concrete case thus presupposes that those features which are “idealized away” will be expressible in the theory by means of a number. The situation in our example seems favorable. We managed to define some numerical

²⁰ Nowak (1980).

measure of “distance from exchange” which in principle can be made a part of the theory of institutions.

But such a procedure does not seem to be very natural. Intuitively, the measure of distance is not a part of any of the two theories. It is — and was introduced — only as a means for comparing them. A more natural account of idealization would leave this measure external and describe the transition to the limit by means of a converging sequence of models. This idea may be worked out along the lines formally proposed by D. Mayr.²¹ The general situation which is exemplified by the case before us is that Nowak’s model grasps what is basic to idealization but at the cost of using a rather restrictive formalism which may be improved in the way indicated.

As regards the role of idealization in science I have two remarks.²² First, we speak of an idealization only when we have some idea of which features exactly are neglected in the idealized picture. If we assume that scientists are clever enough to include all features they think are relevant into their models, we are forced to conclude that idealization can only be detected when a better theory has occurred. Only when we know better we may point out the deficiencies of the idealized theory. This view is confirmed by the development of the natural sciences. Second, materialists will tend to understand idealization as leaving out of consideration some of the true features of the system. Since we have no other access to truth than by our best theories the postulate of an independent reality is strongly metaphysical and does not seem to have many defenders now.²³ Both remarks point to the role of the notion of idealization as a means of becoming aware of, and to “measure”, scientific progress, and I take this as its main role.

Wolfgang Balzer

Institut für Statistik und Wissenschaftstheorie

Universität München

Ludwigstr. 31

80539 München

FRG

²¹ Mayr (1981).

²² I admit that these remarks are based more on the history of the natural sciences than on that of economy. Hoover’s contribution to this volume provides a somewhat different view which seems to prevail in econometrics. However, the issue cannot — and should not — be settled in the present state because this will require a precise explication of idealization which includes the process of confrontation of data and model (and thus the process of parameter estimation).

²³ Of course, the premiss in this sentence is also metaphysical, but “it’s” metaphysics is more advanced than materialism.

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